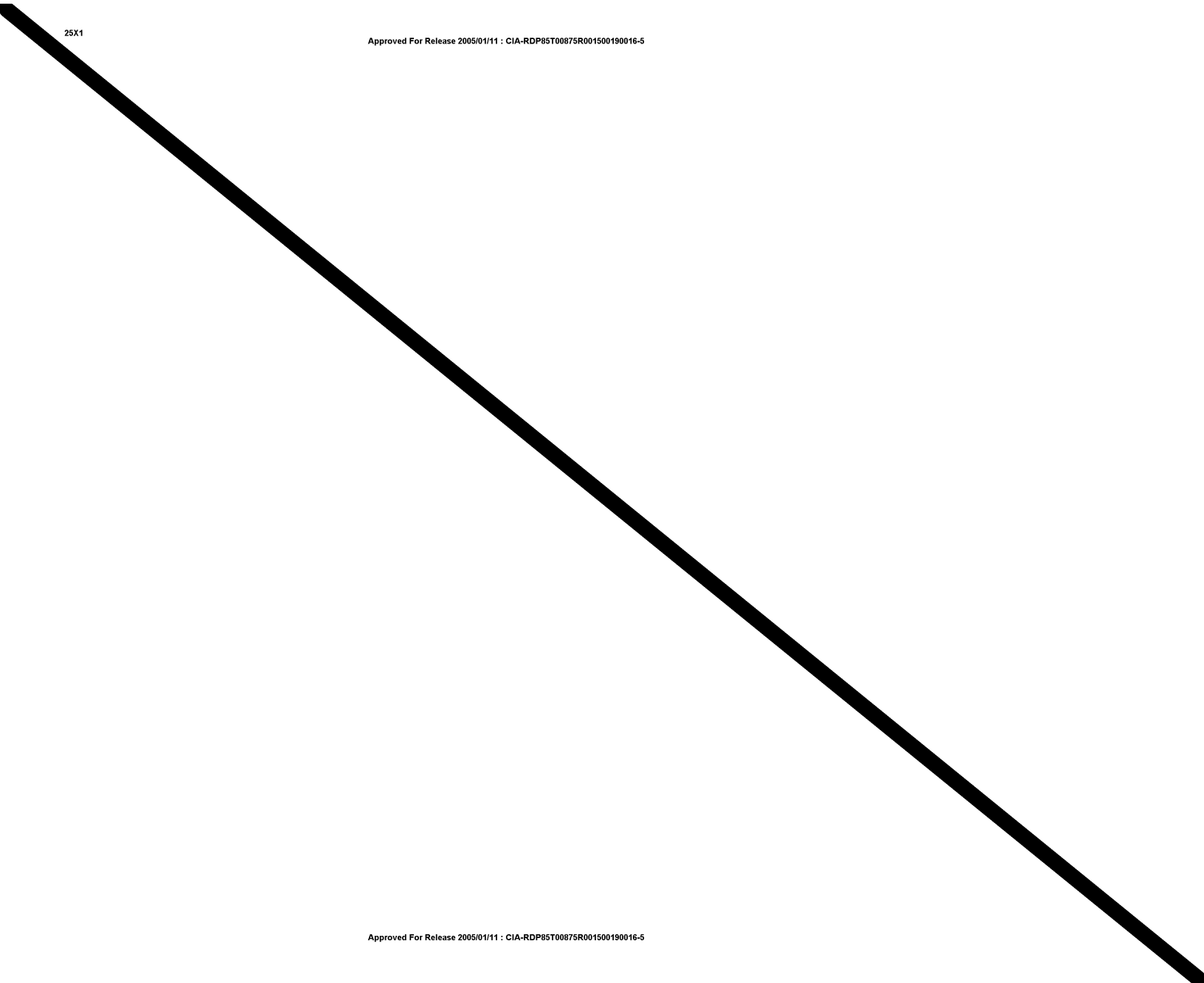

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The 1973 Soviet Grain Harvest

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25 October 1973

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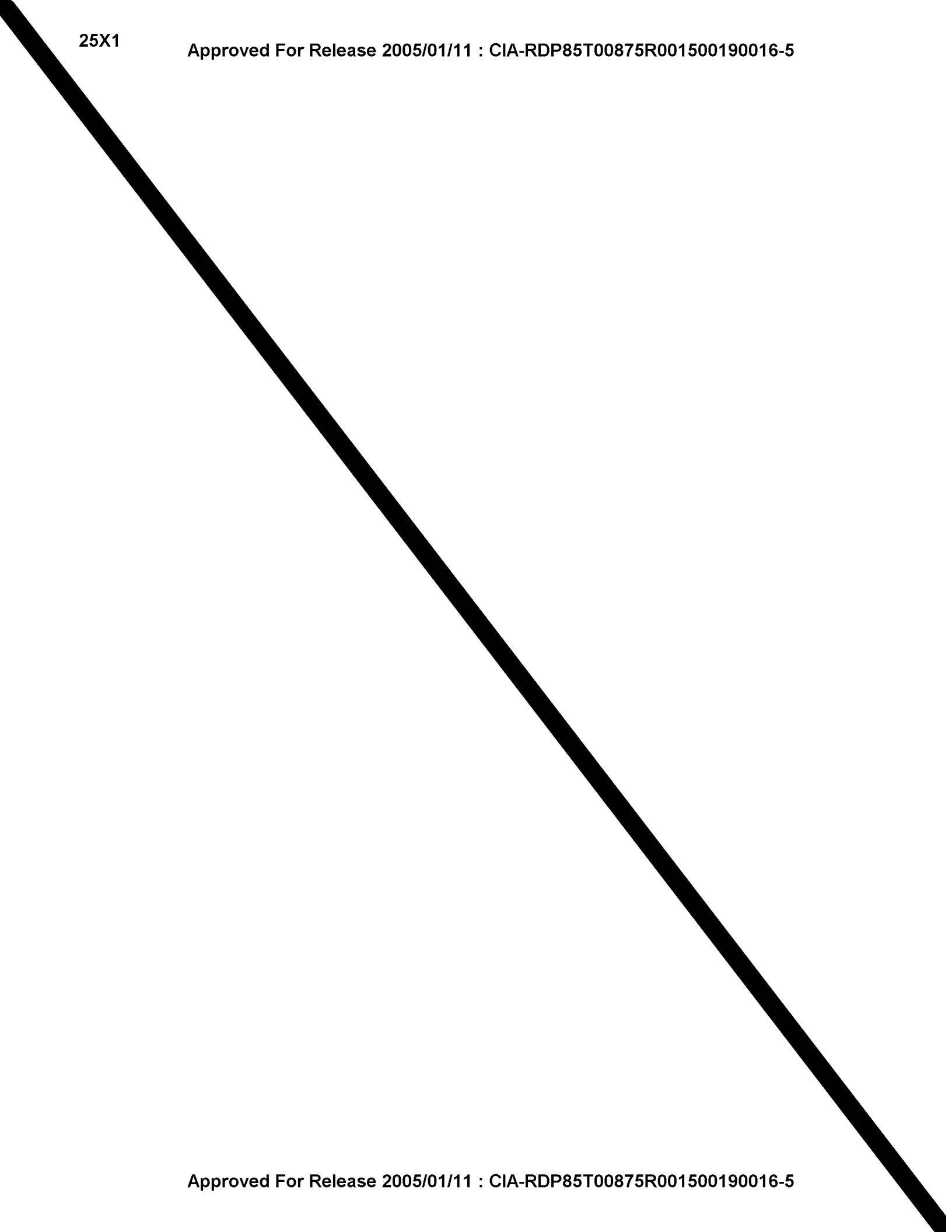

The 1973 Soviet Grain Harvest

Summary

An unprecedented grain harvest will ease pressure on the USSR to import more grain this year. If an earlier Soviet bid for 2-1/2 million metric tons of grain from Canada is accepted, the USSR's total grain imports in fiscal year (FY) 1974 – including part of the grain bought last year -- would reach about 14-1/2 million tons, substantially less than the 24-1/2 million tons imported in FY 1973.

A record Soviet grain harvest of 165 million tons of usable grain is now expected, 15 million tons above the previous high set in 1970. Even with a moderate discount for excess moisture, foreign matter, and post-harvest losses, a usable grain crop of this size would be equivalent to a gross harvest of more than 206 million tons. Unusually wet weather during harvesting this year suggests that the gross harvest, and consequently the discount, may be even higher.

The Soviet press has acknowledged that a record crop of at least 197 million tons will be harvested this year. Instead of celebrating the size of the crop, however, various Soviet officials have voiced concern about completing the harvest and about the poorer quality of this year's crop. In a conversation with Assistant Secretary of Agriculture Brunthaver, for example, Minister of Agriculture Polyansky stressed the harvesting problems caused by excessive rain and expressed uncertainty over the quality of the crop.

Nevertheless, the record harvest, together with expected imports, should allow the Soviets to rebuild stocks and export some grain to non-Communist countries. The recent agreement to send 2 million tons of wheat to India illustrates the flexibility the leadership now enjoys. This year's lower grain imports, however, will not help the Soviet hard currency position in the short term. Even if grain imports are held to 14-1/2 million tons in FY 1974, high prices will keep grain costs in excess of US $1 billion as in FY 1973, and grain loans to countries such as India or increased exports to Communist countries will not earn foreign exchange.

Note: Comments and queries regarding this publication are welcomed. They may be directed to [redacted] of the Office of Economic Research, [redacted]

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Discussion

Status of the Grain Harvest

1. Harvesting operations in the western USSR have finally been completed, and although weather east of the Urals continues to delay harvesting, by 15 October about 96% of the total grain crop had been threshed (see Table 1). The remaining unharvested area is mainly in the Urals, West Siberia, and Kustanay Oblast in Kazakhstan, where freezing temperatures and snow are now common. It is likely that about 4 million hectares out of the 128 million sown to grain will have to be abandoned this year.[1]

2. The weather this year has been generally favorable for growing but unfavorable for harvesting. High winds and rains in late July and a severe storm in mid-August flattened grain in many parts of the western USSR. As a result, farmers had to make special efforts to harvest grain, resorting to hand harvesting in many areas.[2] During September, the northwestern portion of the USSR was particularly troubled by frequent rains and low temperatures, conditions that tend to increase harvest losses and to reduce the quality of the grain. In the Urals region, rain fell almost daily during the first three weeks of September, and snow fell in mid-month. In Orenburg Oblast, part of the troubled Urals region, combines were fitted with caterpillar-type tracks so that they could navigate the water-soaked fields.

3. East of the Urals, generally good weather during August promoted both ripening of the grain and harvesting operations. During the first two weeks of September, above-normal precipitation fell in Kazakhstan, while relatively dry conditions persisted in West Siberia. In the last half of the month, however, temperatures fell throughout most of the New Lands area, and snowstorms were frequent.

Outlook for Grain Production

4. Despite the harvesting problems, we estimate the total usable grain harvest at about 165 million tons, 15 million tons above the previous record set in 1970. A record level of production has been reported for the Ukraine, and the Soviet press has cited good to excellent yields in many oblasts in Kazakhstan and the RSFSR.

1. The total grain area to be harvested is officially 120 million hectares. This excludes all corn as well as grain grown outside state and collective farms.

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Table 1

USSR: Progress in Harvesting of Grain Crops in 1973 Compared with a Seven-Year Annual Average

Date	Seven-Year Annual Average[1]				1973			
	Total Area Threshed[2] (Thousand Hectares)		Proportion Threshed (Percent)		Total Area Threshed[2] (Thousand Hectares)		Proportion Threshed (Percent)	
	Per Period	Cumulative	Per Period	Cumulative[3]	Per Period	Cumulative	Per Period	Cumulative[3]
Before 23 Jul	18,406	18,406	15.9	15.9	15,607	15,607	13.0	13.0
24-30 Jul	9,490	27,896	8.2	24.1	7,893	23,500	6.6	19.6
31 Jul - 6 Aug	10,391	38,287	9.0	33.1	12,300	35,800	10.2	29.8
7-13 Aug	9,876	48,163	8.5	[illegible]	12,050	47,850	10.0	39.9
14-20 Aug	9,554	57,717	8.3	50.0	9,150	57,000	7.6	47.5
21-27 Aug	9,288	67,005	8.0	58.0	10,600	67,600	8.8	56.3
28 Aug - 3 Sep	10,482	77,487	9.1	67.1	12,300	79,900	10.2	66.6
4-10 Sep	10,154	87,641	8.8	75.9	7,400	87,300	6.2	72.8
11-17 Sep	7,338	94,979	6.4	82.2	9,700	97,000	8.1	80.8
18-24 Sep	5,572	100,551	4.8	87.0	6,446	103,446	5.4	86.2
25 Sep - 1 Oct	3,947	104,498	3.4	90.4	3,554	107,000	3.0	89.2
2-8 Oct	2,726	107,224	2.4	92.8	4,550	111,550	3.8	93.0
9-15 Oct	N.A.	N.A.	N.A.	N.A.	3,050	114,600	2.5	95.5
Total[4]	....	115,543	....	100.0	....	120,000	....	100.0

1. 1965, 1966, 1968-72.
2. Including all pulses and grain, except corn, grown on state and collective farms, but excluding area sown to grain on small plots by individuals and area sown on subsidiary farming enterprises operated by non-agricultural firms and organizations.
3. Because of rounding, components may not add to the totals shown.
4. Including area threshed after 15 October and grain area harvested for fodder or abandoned.

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5. A usable grain crop of this size would be equivalent to an official claim of about 206 million tons of grain [3] discounted by 20% for excess moisture, foreign matter, and post-harvest losses. Because of this year's wet harvest conditions, however, yields may be unusually exaggerated, and a higher than normal discount may be required. The Soviet claim could reach as high as 220 million tons and still be consistent with a usable grain crop of about 165 million tons (see Table 2). This estimate assumes the abandonment of about 4 million hectares -- or 6 million tons -- of grain.

Table 2

USSR: Grain Production

	CIA Estimate of Net Usable Grain[1] (Million Metric Tons)	Discount from Gross Production[2] (Percent)	Official Claims of Gross Production[3] (Million Metric Tons)
1966-70 annual average	134	20	168
1970	150	20	187
1971	148	18	181
1972	134	20	168
1973	165	20-25	206-220

1. CIA estimate of usable grain. Net usable grain is estimated as the gross output minus excess moisture, unripe and damaged kernels, weed seeds and other foreign matter, and post-harvest losses incurred in loading, unloading, and handling of grain between combines and storage facilities.
2. The reduction, or "discount," from official claims for gross output of grain to obtain net usable production ranges between 14% in 1963 and 26% in 1960; the overall average is 19% for 1958-71.
3. Bunker weight, including excess moisture and foreign matter.

6. Izvestia of 13 October made the first official prediction of the grain harvest. It stated that the plan of 197.4 million tons would "not only be fulfilled but overfulfilled." Before this article appeared, Soviet

3. Bunker weight, including excess moisture and foreign matter. In early October, a USDA task force forecast the Soviet gross harvest at 195 million tons. On 13 October the Soviet press predicted a crop of at least 197 million tons.

officials had been cautious in assessing this year's crop. In a conversation with US Government officials on 2 October, the head of the Soviet grain-buying agency Eksportkhleb said that the quality of the grain crop was low because of rain, especially in the Central Black Earth, Volga, and Urals regions. Earlier, during a speech in Bulgaria, Brezhnev admitted that there would be "a good harvest" this year but explained that "in many regions of the USSR, harvesting is going on under protracted, intense rains. At this time, of course, it is too early to name the final figures. Much remains to be done, especially in the eastern regions of the country."

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7. The official diffidence about the crop probably reflected uncertainty about the quality rather than the size of the crop. The quality of much of the crop has been endangered by this year's wet conditions.[4] Wet grain is a perennial problem in areas like North Kazakhstan and West Siberia where the harvest is often not completed until after the first snowfall. But wet grain is also a problem this year in the western USSR where grain-drying capacity is limited. Early in September the deputy minister of procurements for the Russian republic complained that "grain is arriving at breadgrain reception centers with a high moisture content, and there is insufficient capacity to dry it."

8. The relatively slow harvesting pace earlier in the season delayed the movement of machinery from one area to another. As a result, the grain area that has been cut and raked into windrows but not threshed has been larger than usual throughout most of the harvesting season, and in most areas, rain fell while the grain was still on the ground. When grain remains damp in windrows for long periods, spoilage can occur while the grain is still in the field. Successive wetting and drying of this grain also can contribute to spoilage after storage. Some grain varieties may even sprout when subjected to continuing moist conditions. During the growing season, prolonged moist conditions following wheat maturity also contribute to problems of green weeds growing above the wheat. The resulting high content of weeds in the harvested grain increases drying problems.

4. For a discussion of the grain quality problem, see the Appendix.

Imports in FY 1974

9. So far this year the Soviets have made new purchases of about 8 million tons of grain. Total deliveries already scheduled for FY 1974, including the carryover from FY 1973 purchases, amount to almost 12 million tons (see Table 3). A Soviet bid earlier this year for an additional 2-1/2 million tons of wheat from Canada could boost the total to about 14-1/2 million tons, compared with the 24-1/2 million tons imported in FY 1973. Aside from the inquiries made of Canada, the Soviets reportedly have stopped their grain buying for the year. Eksportkhleb officials told Assistant Secretary of Agriculture Brunthaver in Moscow in early October that, at the request of the US Government, they will limit FY 1974 purchases from the United States to 4 million tons of wheat and 6 million tons of corn. The USSR has already contracted for roughly these quantities if the carryover from earlier contracts is included.

10. Since 1965 the Brezhnev program to provide more meat and other quality foods has rapidly raised the demand for grain as livestock feed while the use of grain for food has hardly changed. By 1969-70, grain output was not keeping pace with demand, making deep inroads into government reserves even in good production years. Because these stocks had probably reached a dangerously low level by 1972, last year's poor harvest required massive grain imports if the livestock goals were not to be abandoned. More than half of these record imports consisted of wheat to replace the domestic wheat fed to livestock. Indeed, the production of breadgrains in 1972 was almost enough to meet domestic needs aside from feed uses.[5] The 18 million tons of wheat that the USSR received in FY 1973 replaced domestic wheat that had to be fed because of its poor milling quality. In turn, some domestic wheat probably was fed because the USSR, in seeking to meet its overall needs for grain, decided that wheat was a better buy than corn or other feedgrains.

11. The record harvest expected this year together with continued large imports should give the Soviets some freedom of maneuver. They will be able to export more grain to non-Communist countries, for example. Already in 1973 they have agreed to sell or lend wheat to India, Chile, Afghanistan, Bangladesh, Yemen (San'a), and some of the drought-stricken African states. So far, however, the loan of 2 million tons to India is the only sizable deal.

12. In spite of the decline in grain imports, Soviet hard currency expenditures for grain will remain high because of the high grain price. Large purchases of Western grain at relatively low prices helped push the Soviet hard currency deficit to a record high of $1.4 billion in 1972, and

5. For a discussion of the breadgrain balance, see the Appendix.

Table 3

USSR: Grain Purchases[1]
Fiscal Years 1972-74

Million Metric Tons

Commodity and Origin	Bought for Delivery in FY 1972	FY 1973 Bought	FY 1973 Of Which: Shipped	FY 1974 Carry-over	FY 1974 New Purchases	FY 1974 Total
Wheat	4.00	18.525	18.074	0.451	5.499	5.950
United States	....	10.900	10.464	0.436	3.399	3.835
Canada	3.00	5.000	5.000	....	1.500	1.500
Australia	0.50	1.000	1.000	....	0.600	0.600
France	0.50	0.670	0.670	....	....	....
Romania	....	0.500	0.500	....	....	....
Argentina	....	0.150	0.150	....	....	....
Sweden	....	0.150	0.135	0.015	....	0.015
Syria	....	0.150	0.150	....	....	....
Finland	....	0.005	0.005	....	....	....
Barley, rye, and oats	1.30	2.487	2.333	0.154	0.655	0.809
United States (barley)	0.80	0.020	0.020	....	0.061	0.061
United States (rye)	....	0.375	0.221	0.154	0.305	0.459
Canada (barley)	....	0.611	0.611	....	0.089	0.089
France (barley)	0.25	0.930	0.930	....	0.200	0.200
Sweden (rye and oats)	0.05	0.250	0.250	....	....	....
West Germany (rye)	0.15	0.240	0.240	....	....	....
Finland (barley and oats)	0.05	0.061	0.061	....	....	....
Corn and grain sorghum	2.12	7.478	3.930	3.548	1.679	5.227
United States (corn)	1.96	7.200	3.652	3.548	1.679	5.227
Hungary (corn)	....	0.100	0.100	....	....	....
Argentina (sorghum)	....	0.070	0.070	....	....	....
Australia (sorghum)	....	0.070	0.070	....	....	....
South Africa (corn)	....	0.038	0.038	....	....	....
Other	0.16	....	....	....	....	....
Total	**7.42**	**28.490**	**24.337**	**4.153**	**7.833**	**11.986**
US summary						
Wheat	....	10.900	10.464	0.436	3.399	3.835
Barley	0.80	0.020	0.020	....	0.061	0.061
Rye	....	0.375	0.221	0.154	0.305	0.459
Corn	1.96	7.200	3.652	3.548	1.679	5.227
Total	**2.76**	**18.495**	**14.357**	**4.138**	**5.444**	**9.582**

1. Purchased on Soviet account; not all deliveries will go to the USSR.

continued large deliveries and purchases are an important factor in an expected deficit of almost $2 billion in 1973. Even if grain imports are held to 14-1/2 million tons in FY 1974, high prices will keep grain costs in excess of $1 billion as in FY 1973. Soviet exports to countries such as India, which repay in kind or in local currency, do not help the Soviet hard currency position.

APPENDIX

The Soviet Demand for Breadgrains and Problems with Quality

Because information on grain utilization in the Soviet Union is scarce and statistics on Soviet grain stocks are closely guarded secrets, Western estimates of Soviet grain requirements remain somewhat tentative. Allocations for seed, food, and industrial uses – the primary uses of wheat and rye – can, however, be estimated with a reasonable degree of confidence, so domestic requirements for breadgrains can be determined more readily than the demand for feedgrains. Nevertheless, estimates of waste and changes in year-to-year stocks of both breadgrains and feedgrains are rough approximations.

Estimates of the breadgrain balance in FYs 1973 and 1974 are shown in Table 4. The table discloses a very surprising fact. In FY 1973, when the USSR bought about 19 million tons of wheat and rye, domestic

Table 4

USSR: Estimates of Supply and Demand for Breadgrains[1]

	Supply of Breadgrains			Demand for Breadgrains (Million Metric Tons)					
	Gross Production (Million Metric Tons)	Discount[2] (Percent)	Net Production (Million Metric Tons)	Food and Industrial Use	Seed[3]	Waste[4]	Exports	Amount Available for Other Uses	Total
FY 1973	95.4	19	77.3	55.0	14.9	2.3	5.5	-0.4	77.3
FY 1974	109.0	20-25	82-87	55.0	17.0	2.5	4.0	3.5-8.5	82-87

1. Winter and spring wheat and winter rye.
2. Discount to adjust gross production for excess moisture, unripe and damaged kernels, weed seeds and other foreign matter, and post-harvest losses incurred in loading, unloading, and handling of grain between combines and storage facilities.
3. Seed used in planting the succeeding year's crop.
4. An allowance of 3% of net production is used to cover losses after harvesting and in the initial stage of storage.

production was only 500,000 tons less than the USSR's requirements for human consumption, industrial uses, and exports. The purchases, then, were used to feed livestock, to replace grain that spoiled during storage, or perhaps to rebuild depleted stocks. In FY 1974, the supply of breadgrains should be 3.5 million to 8.5 million tons greater than the demand for human consumption, industrial uses, and exports. The continuing presence of the USSR in the international wheat market can only be explained by

the Soviet predisposition to use breadgrains as livestock feed and by perennial problems with the quality of stored grain.

The USSR's concern over breadgrain quality is persistent and justified. When the quantity and quality of protein and gluten in wheat is low, the quality of the baked product is poor, or the wheat cannot be used at all in baking. In many cases grain deterioration lowers the quality of protein and gluten, not the quantity. Since only quantitative measures are used in testing wheat for protein and gluten content, a baked product has to be observed before the full extent of deterioration can be assessed.[1] Often the substandard grain can be reclaimed only for industrial use (e.g., in alcohol production) or for livestock feed.

Recent Soviet press reports identify high moisture content as one of the three major threats to the quality of this year's crop.[2] Because the growing season is short and much of the annual precipitation falls during harvesting in the spring wheat belt, the USSR has to dry a good part of its grain to acceptable levels in every year before it can be stored. The problem is especially serious in "wet" years owing to the lack of modern high-capacity mechanical dryers to process the grain before storage. As a rule, grain with 14%-15% moisture content can be safely stored as long as the temperature remains below 40°-50°F. If the temperature increases or the grain has a higher moisture content, the grain is likely to become moldy, turn color, produce a flour with a rancid flavor, and even ferment.[3] This year, because so much rain fell during harvesting in the west while the east had its usual wet harvest, a large share of the wheat crop has a high moisture content. In Volgograd Oblast, for example, large amounts of grain have arrived at state elevators with a moisture content in excess of 50%, compared with a moisture content of only 15-1/2% for almost 95% of all wheat procured in the oblast during 1963-68. As Polyansky and other Soviet farm leaders know, failure to dry the grain harvested this year adequately will jeopardize the quality of the crop during storage.

1. In contrast to protein and gluten quantity, which can be measured in the grain, protein and gluten quality can be determined only from the milled flour. Potential bread-baking strength can be estimated from the so-called dough-ball test, but a baked product is the best test of quality.
2. Others include insects such as the senn pest (not known in the United States but common in the Middle East, Turkey, and the USSR) and wheat smut.
3. Most mold damage is associated with moisture conditions that foster insect damage. The feeding insects create "heat pockets" in stored grain which, in turn, interact with moisture to create conditions favorable for the formation of mold.